Ordering number: EN 994D

Monolithic Linear IC



No.994D

LA6339

High-Performance Quad Comparator

The LA6339 is a high-performance quad comparator that is capable of operating from a single power supply over a wide range of 2V to 36V. Because of its excellent input characteristics and low power, it can be very conveniently applied to multisignal parallel comparator circuits that require high-density assembly.

Features

- Wide supply voltage range (Single supply: 2.0 to 36.0 V, dual supplies: ±1.0 to ±18.0V).
- Wide common-mode input voltage range (0 to V_{CC}−1.5 V).
- Open collector output enabling wired OR.
- Small current dissipation (0.8mA/V_{CC}=5V, R_L=∞) and low power.

Maximum Ratings at T_a=25°C

			unit
Maximum Supply Voltage	V_{CC}max	36	V
Differential Input Voltage	V_{ID}	36	V
Common-mode Input Voltage	V_{ICM}	−0.3 to +36	V
Allowable Power Dissipation	$P_d$max	700	mW
Operating Temperature	Topr	−30 to +85	°C
Storage Temperature	Tstg	−55 to +125	°C

Operating Characteristics at T_a=25°C, V_{CC}=5V

			Test circuit	min	typ	min	unit
Input Offset Voltage	V_{IO}		1		±2	±5	mV
Input Offset Current	I_{IO}		2		±5	±50	nA
Input Bias Current	I_B		3		25	250	nA
Common-mode Input Voltage	V_{ICM}			0		V_{CC}−1.5	V
Current Dissipation	I_{CC}	R_L=∞	4		0.8	2	mA
Voltage Gain	VG	R_L=15kohms	5		200		V/mV
Response Time		V_{RL}=5V, R_L=5.1kohms	6		1.3		µs
Output Sink Current	I_{SINK}	V_{IN^-}=1V, V_{IN^+}=0V, V_O≦1.5V	7	6	16		mA
Output Saturation Voltage	V_{OL}	V_{IN^-}=1V, V_{IN^+}=0V, I_{SINK}≦3mA	8		0.2	0.4	V
Output Leak Current	I_{LEAK}	V_{IN^-}=0V, V_{IN^+}=1V, V_O=5V	9		0.1		nA

Pin Assignment and Equivalent Circuit (1 unit)

VOUT3 VOUT4 GND VIN4+ VIN4− VIN3+ VIN3−
14 13 12 11 10 9 8
1 2 3 4 5 6 7
VOUT2 VOUT1 VCC VIN1− VIN1+ VIN2− VIN2+

VCC, 100uA, 100uA, VIN+, VIN−, GND, TR1, TR2, TR3, TR4, TR5, TR6, TR7, TR8, VOUT

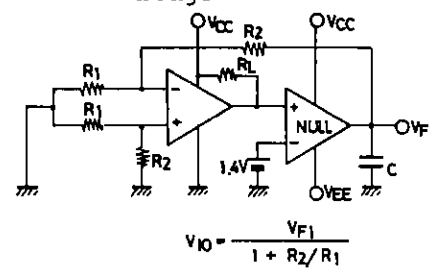
Package Dimensions 3003A-D14IC (unit: mm)

14, 8, 1, 7, 19.2, 6.4, 7.62, 0.25, 3.65 max, 3.4, 0.48, 1.2, 2.54

SANYO Electric Co.,Ltd. Semiconductor Business Headquarters
TOKYO OFFICE Tokyo Bldg., 1-10, 1 Chome, Ueno, Taito-ku, TOKYO, 110 JAPAN

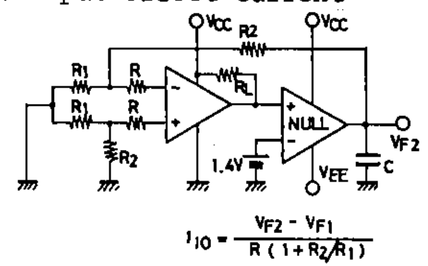
Test Circuits

1. Input offset voltage



$$V_{IO}=\frac{V_{F1}}{1+R_2/R_1}$$

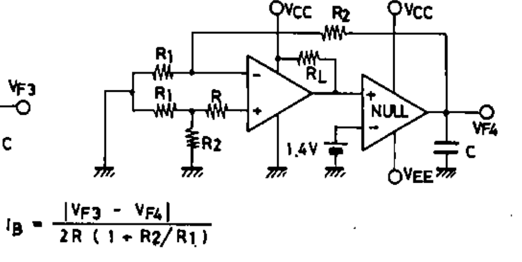
2. Input offset current



$$I_{IO}=\frac{V_{F2}-V_{F1}}{R(1+R_2/R_1)}$$

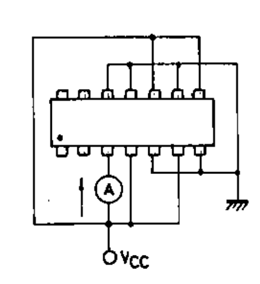
3. Input bias current

VCC R2 VCC R1 R RL R1 NULL VF3 R2 1.4V C VEE

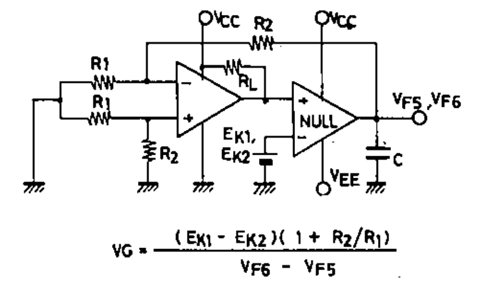


$$I_B=\frac{|V_{F3}-V_{F4}|}{2R(1+R_2/R_1)}$$

4. Current dissipation

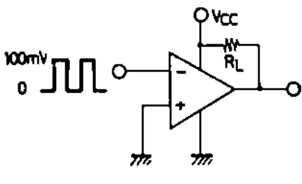


5. Voltage gain



$$V_G=\frac{(E_{K1}-E_{K2})(1+R_2/R_1)}{V_{F6}-V_{F5}}$$

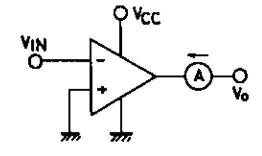
6. Response time



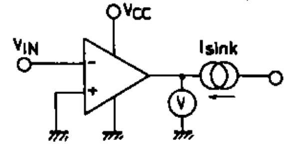
VOUT 90 % tr VIN 0 ΔV

ΔV : Overdrive

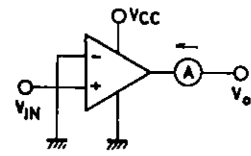
7. Output sink current

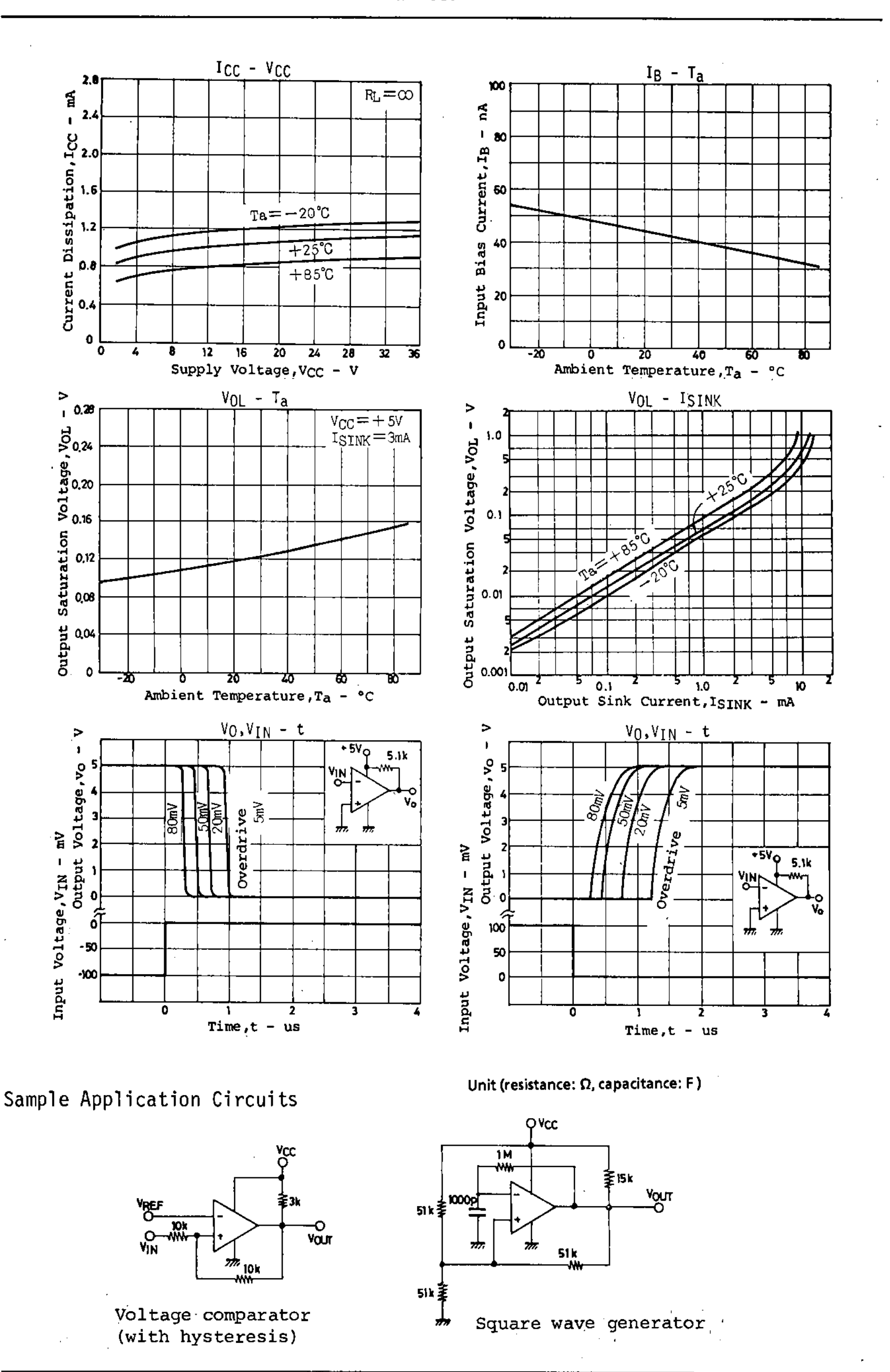


8. Output saturation voltage



9. Output leak current





Sample Application Circuits

Unit (resistance: Ω, capacitance: F)

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